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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,119	03/06/2002	John A. Lawton	P 283291 D1149	5159

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EXAMINER

HAMILTON, CYNTHIA

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,119

Applicant(s)

LAWTON, JOHN A.

Examiner

Cynthia Hamilton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3-6-02, 4/28/02, 11/14/02.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1- 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,6. 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed March 6, 2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material that is not supported by the original disclosure is as follows: U.S. provisional Application NO. 60/299,470 filed June 21, 2001 which is hereby incorporated in its entirety by reference". The examiner notes that applicants filed this amendment as they filed the patent application on March 6, 2002. In MPEP 601.01 (a) is found "If an amendment is filed on the same day that the application filed under 37 CFR 1.53(b) is filed and is referred to in the original oath or declaration filed with or after the application, it constitutes a part of the original application papers and the question of new matter is not considered." Applicants did not include the preliminary amendment filed along with the patent application in their Declaration filed April 8, 2002.

Applicant is required to cancel the new matter in the reply to this Office Action.

2. The examiner notes the following applicant supplied definition of "rapid prototyping" from page 18, lines 21-25:

Rapid prototyping, sometimes also referred to as "solid imaging" or "stereolithography", is a process wherein a photoformable liquid is coated into a thin layer upon a surface and exposed imagewise to actinic radiation such that the liquid solidifies imagewise.

What follows this definition in the specification is

This coating is most conveniently done if the composition is a liquid at room temperature, but a solid composition may also be melted to form a layer. Subsequently, new thin layers of photoformable liquids are coated onto previous layers of liquid or previously solidified sections. Then the new layer is exposed imagewise in order to solidify portions imagewise and in order to induce adhesion between portions of the new hardened region and portions of the previously hardened region. Each imagewise exposure is of a shape that relates to a pertinent cross-section of a photohardened object such that when all the layers have been coated and all the exposures have been completed, an integral photohardened object can be removed from the surrounding liquid composition.

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This additional wording is not clearly part of the definition set forth in lines 21-25. Thus, the examiner accepts that in process claims such as 8 limited by only one process step of “rapid prototyping” applicants have defined as process wherein a photoformable liquid is coated into a thin layer upon a surface and exposed imagewise to actinic radiation such that the liquid solidifies imagewise.

The optional “can” and “for instance” definition of “rapid prototyping” set forth on the top of page 19 by applicants following this very specific “is a process” definition does not act to limit the “rapid prototyping” term since the conditional words leave open other definitions. The definition of page 18, lines 21-25 is broader in scope than that of page 19. It includes one-layer objects as well as multilayer objects.

3. The examiner notes that applicants define hybrid compositions with respect to cationically curable compositions on page 1, lines 9-15. The disclosure is as follows:

Cationically polymerizable compositions, such as epoxy based polymerizable compositions, are capable of producing articles having high image accuracy. However, due to the relatively slow cure of the cationically curable compositions it is often necessary to prepare hybrid compositions, i.e. mix the cationically curable compounds with relatively fast curing free radical polymerizable compounds.

The definition found is “hybrid compositions, i.e. mix the cationically curable compounds with relatively fast curing free radical polymerizable compounds.” There is no definition of “radiation-curable hybrid composition” as set forth in claims 30-31. Thus, the examiner has taken the term to mean a radiation curable composition that is also the hybrid composition comprised of a mixture of cationically curable compound with relatively fast curing free radical polymerizable compounds. There is no limit on the kinds of cure required here and the composition must be able to be radiation cured. There is no limit to any level of clarity in the final cured product. The limit is that the clarity be improved by a ratio of 1.03 by the addition of

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the “compatible free radical polymerizable component.” The hybrid composition must already have a cationically curable compound and a “relatively fast curing free radical polymerizable compound” before this addition because of the definition of “hybrid composition” set forth by applicants. Applicants define the ratio of clarity on page 18 of their specification in lines 9-13.

The applicant defined meaning for this ratio is as follows:

The ratio of the clarity of the present composition, after cure, to the clarity of a comparable composition, after cure, is preferably greater than 1.03, said comparable composition being identical to said radiation-curable composition except that said comparable composition does not comprise a compatible free radical polymerizable component.

4. The examiner notes that the cationic photoinitiator of claim 21 is limited to those that are “antimonate”. This is by definition according to Webster’s’ 1913 Dictionary “A compound of antimonious acid with a base or basic radical”. There is no limit to triarylsulfonium hexafluoroantimonate salts that is the only “antimonate” found in the specification as filed besides that of original claim 21. The antimonate must also be a cationic photoinitiator as a worker of skill in the art would recognize a cationic photoinitiator.

5. The examiner notes that claims 10-31 are drawn to compositions, processes and objects wherein there is no specified clarity value only that the ratio of clarity be a certain value. As evidenced by page 25 wherein cured materials have clarity much less than 90%, it is clear that the proper interpretation of these claims is that they only overlap the compositions of claim 1 wherein there is a clarity of more than 90% and a cationic photoinitiator is present. There is no claim in claims 10-31 so limited. The compositions of claims 1-9 are not required to have any “ratio of clarity” at all. The composition of claim 1 when referencing compositions with only one free radical polymerizable compound is outside the scope of claims 10-31 because there is no hybrid composition to add a component to so that a ratio of clarity can be obtained.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 30-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear if "curing a radiation-curable hybrid composition" is part of the "process for improving, by a factor of more than 1.03, the clarity of a product obtained by curing a radiation-curable hybrid composition" because the method of improvement is comprised of "adding, prior to said curing, a compatible free radical polymerizable component to said hybrid composition". Is the improvement just the addition step or is it the addition step being added to the curing step? The examiner has examined this application in the broadest interpretation reasonable, i.e. the improvement process has only one step and that is adding a compatible free radical polymerizable component to a "radiation-curable hybrid composition". This component has the property of being able in some method of curing to improving the clarity of the cured product of the hybrid composition without the additive. There is no limitation on the manner of cure in the required property. The cure may be by radiation, heat, etc. Applicants define the ratio of clarity on page 18 of their specification in lines 9-13. The applicant defined meaning for this ratio is as follows:

The ratio of the clarity of the present composition, after cure, to the clarity of a comparable composition, after cure, is preferably greater than 1.03, said comparable composition being identical to said radiation-curable composition except that said comparable composition does not comprise a compatible free radical polymerizable component.

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It is not clear that the “improving, by a factor more than 1.03, the clarity of a product” as found in claims 30-31 references this ratio of clarity measurement. Thus, claims 30-31 are indefinite because of the lack of what factor of clarity is improved by more than 1.03 and whether a curing step is part of the process claimed.

8. Claims 10-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 10-29 are limited to a radiation-curable composition “wherein said composition, after cure, has a clarity ratio greater than 1.03”. Applicants define the ratio of clarity on page 18 of their specification in lines 9-13. The applicant defined meaning for this ratio is as follows:

The ratio of the clarity of the present composition, after cure, to the clarity of a comparable composition, after cure, is preferably greater than 1.03, said comparable composition being identical to said radiation-curable composition except that said comparable composition does not comprise a compatible free radical polymerizable component.

The radiation-curable composition claims 10-29 do not set forth the “compatible free radical polymerizable component” with respect to the “comparable composition” required for this definition to be applicable to the “clarity ratio greater than 1.03”. Thus, this limit of “clarity ratio greater than 1.03” in claims 10-29 is not clearly defined in view of the composition set forth.

The limit is vague because by reading the claim a worker of ordinary skill in the art would not know how to determine “clarity ratio greater than 1.03” thus could not determine what is encompassed by the instant claims. To make applicant’s definition from page 18 work, it must be clear what “compatible free radical polymerizable component was added to what “comparable composition”. The examiner believes the claim language of claims 10-29 does not do this.

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9. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 5 references "said free radical polymerizing component component" from claim 1. There is no polymerizing component in claim 1. Thus, there is no clear antecedent basis for this limitation. The examiner notes claim 1 does have a "a free radical polymerizable component". For examination purposes with respect to prior art, she has assumed this was what applicants intended.

10. Claims 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 16-17 reference "said first free radical polymerizable component" in claim 1. There is no such component in claim 1, thus there is no clear antecedent basis for this reference. The examiner notes claim 10 has a first free radical polymerizable component.

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15. Claims 1, 3, 5-6, 10, 15, 18, 20-22, 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Kistner (4,623,676). The compositions of Kistner comprised of a polymerizable acrylic compound and polymerizable epoxy-functional silane compound, a free-radical photoinitiator and a cationic photoinitiator wherein the compositions cure into layers transparent enough to act as transparent coatings on phototools and photographic elements would inherently

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possess the required clarity set forth in the instant claims. Thus, the working examples of Kistner as set forth in Examples 1-9 and composed of dipentaerythritol hydroxypentaacrylate, 1,6 hexandiol diacrylate, gamma-glycidoxypopyl trimethoxysilane, 1-hydroxycyclohexylphenyl ketone and triphenylsulfonium hexafluoroantimonate as in Solution Number 1 and 4 anticipate the compositions of instant claims 1, 3, 5-6, 10, 15, 18, 20-22, 25-27. The composition of the abstract of Kistner anticipates the composition of instant claims 1, 18 and 20. Other preferred examples of Kistner also anticipate several of these instant claims dependent upon choice of free-radical acrylic compound in Kistner.

16. Claims 1 and 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Lawton et al (5,707,780). The compositions of the Examples of Lawton et al anticipate the compositions of claims 1 and 6-9 wherein the examples of Lawton et al inherently have clarity of more than 90%. Evidence to support this is found in the Abstract of Lawton et al wherein the compositions are disclosed to have "excellent clarity". The free radical polymerizable component other than caprolactone is trimethylolpropane found in Tables 1, 2, and compositions 1 and 2 in col. 14 as SR 351 in Lawton et al.

17. Claims 10-13, 15, 22, and 25-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsukada et al (3,989,610). The composition, method of imaging and object formed of Example 4 of Tsukada et al anticipates the instant compositions, processes and objects of claims 10-13, 15, 22, and 25-31 wherein the addition of polyethylene glycoldimethacrylate ($n=9$ wherein n is taken as the number of ethylene groups in the polyethylene) is the component increasing clarity. The examiner notes that the instant claim limits do not include a cationic photoinitiator. Pentaerithritol triacrylate has hydroxy groups.

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18. Claims 1, 6, 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Harasta et al (4,426,431). Examples 1 and 2 of Harasta et al anticipate the instant compositions of claims 1, 6 and 18-21. In Harasta et al see particularly the Abstract, and col. 5-6.

19. Claims 1-3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harasta et al (4,426,431). Harasta et al teach the instant compositions of claims 1,6 and 18-21 wherein clear coatings are made and choices for the polymerizable acrylic compound are inclusive of tetraethylene glycol diacrylate, tetraethylene glycol dimethacrylate, and diethylene glycol dimethacrylate. With respect to instant claims 1-3 and 5, the use of any of the "useful acrylic compounds" as the third essential ingredient of Harasta et al as taught in col. 6, lines 33-66 to form the protective layers over photographs would have been prima facie obvious. In Harasta et al, see particularly the Abstract, Field of Invention, and Summary of the Invention. The protective coatings of Harasta et al to be useful must be transparent enough not to obscure the photograph it is covering.

20. Claims 1, 4-6, 8-9, 16-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Steinmann et al (5,476,748). The compositions, methods and articles of Steinmann et al in Examples 1-12 and especially Example 14 anticipate the compositions, methods and articles of instant claims 1, 4-6, 8-9, 16-21 wherein in col. 11, lines 20-24, Steinmann et al discloses the compositions when used as coatings are clear coatings.

21. Claims 1-6, 8-22, and 25-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Hagiwara et al (5,849,459). The examples of Hagiwara et al anticipate the processes, compositions and articles of instant claims 1-6, 8-21, and 25-31 wherein a transparent three dimensional article is the desired end product as taught in col. 2, lines 20-27. In Reference

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Example 2 of Hagiwara et al is found ethylene oxide modified trimethylol propane triacrylate and 2,2 bis (4-(acryloxydiethoxy)phenylpropane, in Reference example 3 is found ethylene oxide modified pentaerythritol tetraacrylate and ethylene glycol.

22. Claims 1-6, 8-22, 24-31 are rejected under 35 U.S.C. 102(e or a) as being anticipated by Pang et al (6,100,007). In Col. 20, lines 3-6, Pang et al discloses their compositions form clear hard coatings. Thus, with respect to instant claims 1-6, 8-22, 24-31, the compositions of Table I inherently anticipate the instant compositions and are used in the instant processes and make articles which inherently have the instant properties of clarity.

23. Claims 1,5,8-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamamura et al (6,287,745). The examples of Yamamura et al anticipate the instant compositions, methods and articles of claims 1,5 and 8-9 wherein col. 3, lines 59-62 of Yamamura et al disclose the composition is transparent before cure and/or after cure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is (703) 308-3626. The examiner can normally be reached on Monday-Friday, 9:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305 0661.



**CYNTHIA HAMILTON
PRIMARY EXAMINER**

November 17, 2003

Cynthia Hamilton
Primary Examiner
Art Unit 1752